Shadow Banking: Background and Policy Issues

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Summary

Shadow banking refers to financial firms and activities that perform similar functions to those of depository banks. Although the term is used to describe dissimilar firms and activities, a general policy concern is that a component of shadow banking could be a source of financial instability, even though that component might not be subject to regulations designed to prevent a crisis, or be eligible for emergency facilities designed to mitigate financial turmoil once it has begun. This concern is magnified by the experience of 2007-2009, during which financial problems among nonbank lenders, and disruption to securitization (in which both banks and nonbanks participated), contributed to the magnitude of the financial crisis. This report provides a framework for understanding shadow banking, discusses several fundamental problems of financial intermediation, and describes the experiences of several specific sectors of shadow banking during the financial crisis and related policy concerns.

Shadow banking is contrasted with *luminated banking*, a term which the report uses to describe chartered banks that gather funds from depositors in order to offer loans that the chartered bank holds itself. Luminated banking, like all forms of financial intermediation, is subject to well-known risks, including credit risk, interest rate risk, maturity mismatch, and the potential for runs. Each sector of shadow banking is generally subject to the same problem of financial intermediation to which the sector is analogous. For example, if a sector of shadow banking such as money market funds (MMF) has investors that are analogous to depositors in luminated banking, then the potential for runs may be similar. Or, if the sector relies on collateralized loans, such as asset-backed commercial paper (ABCP), then disruptions in the market for the underlying collateral can cause fire sales that may reinforce and magnify price declines.

The regulatory regime and eligibility for emergency financial assistance for shadow banking varies from sector to sector and type of firm to type of firm. For example, the Dodd-Frank Act subjects certain large nonbank firms funded by repurchase agreements (repos) to safety and soundness regulation similar to banks. The Dodd-Frank Act prohibits emergency assistance to individual firms as was done in 2008 for Bear Stearns or AIG, but preserves the ability of the Federal Reserve to provide more generally eligible assistance to shadow banking sectors such as ABCP through the Term Asset Backed Liquidity Facility (TALF). Title II of the Dodd-Frank Act allows the FDIC to resolve the failure of any firm, including shadow banking firms, whose failure may pose a threat to financial stability.

Several components of shadow banking rely on securities markets to fund debt. These securities regulations are typically activity based, applying to all securities market participants if there is no explicit exemption. Securities regulation requires disclosure of material risks, but often does not attempt to limit the risks of firms funded through securities markets. In contrast, banking regulation sometimes applies only to firms with specific charters. Furthermore, banking regulators oversee linkages between banks, such as the payment system. Thus, debt funded through securities markets is likely to be subject to regulation no matter who does it, but that regulation is unlikely to be risk-based or to incorporate linkages between firms. Banking regulation is likely to be risk based, but to miss debt funded through securities markets.

Some policy options for shadow banking firms and markets are often analogous to policy options for depository banking or securities markets. Firms that engage in shadow banking could be subjected to safety and soundness regulation and capital requirements in order to limit risk and encourage resilience. Providers of short-term credit to shadow banks could be offered guarantees analogous to deposit insurance in order to minimize runs. Non-bank firms that rely on short-term credit to fund lending (or the holding of debt) can be made eligible for emergency lending facilities from a lender of last resort in order to address liquidity problems.

There are alternatives to the banking approach. Banks and other firms that fund themselves with substitute for deposits could be assessed higher fees to account for potential systemic costs that current market prices might not incorporate. More financial regulation could be made activity based, rather than charter based, in order to lessen regulatory arbitrage. Differences in banking regulation and securities regulation for the funding of debt could be preserved, but each separate category of regulation could be addressed where it applies.

The report analyzes five sectors of shadow banking. These sectors include (1) repos, (2) non-bank intermediaries, (3) ABCP, (4) securitization, and (5) MMFs. For each of these sectors, the report briefly defines the sector, recounts the sector's experience during the financial crisis, and outlines some related policy concerns. Each policy problem is described in the context of the general problems of financial intermediation introduced earlier in the report.

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One view of the financial crisis of 2007-2008 is that it was not centered in traditional banking.[1] The term *shadow banking* " ... refers to credit intermediation involving leverage and maturity transformation that is partly or wholly outside the traditional banking system."[2] That is, shadow banking substitutes at least partially for simple banking in the creation and funding of debt. Several components of the shadow banking system contributed to the breadth of the financial turmoil that began in 2007, and the magnitude of the financial panic in September 2008, according to the Financial Crisis Inquiry Commission (FCIC).[3] In response, regulatory policymakers have been analyzing how the shadow banking system works, and considering options to promote greater financial stability in shadow banking.[4] Congress is considering several shadow banking regulatory reform proposals (e.g. changing the status of repurchase agreements [repos] in bankruptcy proceedings), overseeing related agency rulemaking (e.g., regulations for Money Market Funds [MMFs]), and overseeing the implementation of related financial reform legislation (e.g. applying the capital requirements in Section 171 of the Dodd-Frank Act to nonbanks).

This report develops a general framework for analyzing financial intermediation, and applies these concepts to several specific shadow banking sectors. The report focuses on comparing and contrasting the fundamental economic problems of simple banking (which will be referred to as *luminated banking*) and associated policy responses to analogous problems and policy proposals in shadow banking. Shadow banking provides a similar general service (financial intermediation) as luminated banking, and is subject to similar fundamental economic problems. Furthermore, many of the proposed regulatory responses for shadow banking have policy trade-offs analogous to regulatory policies in banking, and some shadow banking sectors already have a financial regulatory regime (such as securities regulations). Many of these economic problems and potential policy responses are illustrated by the experiences of five shadow banking sectors (repos, nonbanks, asset backed commercial paper [ABCP], securitization, and MMFs) during 2007-2008, and by regulatory responses currently being considered.[5]

[1] For example, the head of the FDIC emphasized the leverage of non-bank affiliates and off-balance sheet entities in testimony to Congress regarding the causes of the financial crisis. "Statement of Sheila C. Bair, Chairman, Federal Deposit Insurance Corporation on FDIC Oversight: Examining and Evaluating the Role of the Regulator during the Financial Crisis and Today," House Subcommittee on Financial Institutions and Consumer Credit, May 26, 2011, available at http://www.fdic.gov/news/news/speeches/chairman/spmay2611.html.

[2] There is no single authoritative definition of shadow banking. Even in the speech in which this quote is taken, Federal Reserve Governor Tarullo later suggests that being considered a "safe asset" is also an essential feature of shadow banking. This report will use Governor Tarullo's more generic definition rather than "safety" in order to encompass several practices that Congress has included under the rubric of shadow banking during hearings and other deliberations. The quote is taken from Governor Daniel K. Tarullo, "Speech before the Federal Reserve Bank of San Francisco Conference on Challenges in Global Finance: The Role of Asia," June 12, 2012, available at http://www.federalreserve.gov/newsevents/speech/tarullo20120612a.htm.

[3] *Financial Crisis Inquiry Report* (Majority Opinion), Financial Crisis Inquiry Commission, U.S. Government Printing Office, pp. 27-37, available at http://bookstore.gpo.gov.

[4] For example, member agencies of the Financial Stability Board (FSB) have issued recommendations for coordinated regulatory changes for several shadow banking practices. See "An Overview of Policy Recommendations for Shadow Banking," Financial Stability Board, 29 August 2013, available at http://www.financialstabilityboard.org/publications/r_130829a.htm.

[5] This report focuses on regulatory differences between banking and shadow banking, not on implications for monetary policy. For a discussion of the role of shadow banking in monetary innovation, especially in the supply of collateral for financial transactions, see Singh, Manmohan, "The Economics of Shadow Banking," prepared for the Reserve Bank of Australia Conference on Liquidity and Funding Markets, Aug., 2013, available at http://www.rba.gov.au/publications/confs/2013/pdf/singh.pdf.

Similarities and differences between securities market regulation and banking regulation can influence the size and stability of the financial system. In many cases (but not all), the kind of regulation applied to securities market activities is fundamentally different from the regulation of chartered depository banks. Banking regulation is typically applied only to specific institutions, is risk-based, takes into account the linkages between banks through the payment system, and includes government emergency backstops, such as a lender of last resort and a deposit guarantor. Securities regulation, which several categories of shadow banking involves, generally requires disclosure of material risks, but typically does not limit the risk that sophisticated securities market participants may take. On the other hand, the regulation of securities is often product and activity based, and therefore may adapt to financial innovations in which debt-related securities are offered by new kinds of business entities. Differences in these regulatory regimes can affect the degree to which debt is created through banking or shadow banking. The diversity of shadow banking activities and institutions makes it difficult to generalize; however, the degree to which debt financing in the financial system is covered by risk-based regulation, has access to emergency backstops, or can easily adapt to innovation in the provision of similar services may be influenced by regulatory choices for banking and shadow banking. By extension, changes to the regulation of shadow banking can affect the relative stability of the overall financial system.

The organization of the report is as follows. The report defines luminated banking and shadow banking, and identifies several common sources of financial instability from an economic perspective.[6] The report describes some of the standard economic tools (including regulations and emergency support) that are often applied to banking. It then describes five major components of shadow banking, and for each one, recounts its experience during the financial turmoil of 2007-2008 and analyzes policy proposals to change the regulatory approach and emergency support for that sector. The policy proposals are related back to analogous policy proposals in banking regulation.

Defining Luminated Banking and Shadow Banking

Defining "shadow banking" is difficult because defining banking is difficult.[7] Some analysts might be tempted to define banking as whatever firms with bank charters do; however, policy discussions of shadow banking include activities in which chartered banks participate, sometimes only with each other.[8] Therefore, a definition that is based on functions may be more useful for policy analysis, but even the functional definitions offered by various researchers have varied significantly, with important implications for what gets included under the label "shadow banking."[9] This report will follow a functional definition, seeking to provide a framework for

[6] Each of the chosen sectors has been discussed in recent congressional deliberations in the context of shadow banking. It is not an exhaustive list of topics that could fit a definition of shadow banking.

[7] One financial industry primer included a table of six differing definitions of shadow banking offered by the chairman of the Federal Reserve, agency research staff, academics, and the Financial Stability Board. Some of the definitions sought to exclude chartered banks, while others emphasized the participation of banks in parts of the shadow banking system. See Exhibit 1 of "The Deloitte Shadow Banking Index", Deloitte Center for Financial Services, available at http://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/CFO_Center_FT/US_FSI_The_Deloitte_Shadow_Banking_052912.pdf.

[8] IMF research economists have critiqued definitions of shadow banking that attempt to exclude banks. " ... , many shadow banking activities, for instance, liquidity puts to securitisation structured investment vehicles, collateral operations of dealer banks, repos, and so on, operate within banks, especially systemic ones." Stijn Claessens and Lev Ratnovski, "What is Shadow Banking?" Vox.edu, 23 August 2013, available at http://www.voxeu.org/article/what-shadow-banking.

[9] For example, a staff research paper of the Federal Reserve Bank of New York would limit shadow banking only to

analyzing several large sectors of the financial system that are usually included under the rubric "shadow banking," yet excludes insured deposits of chartered banks that hold their loans.

In broad terms, both banking and shadow banking provide the same service, which is financial intermediation. Financial intermediation includes gathering funds from savers, screening and qualifying applicants for funds, issuing and holding financial assets, and coordinating the payment of returns to savers. Shadow banking involves providing this financial intermediation with at least one difference from simple banking. In many cases (but not all), that difference involves reliance on securities markets to fund loans.

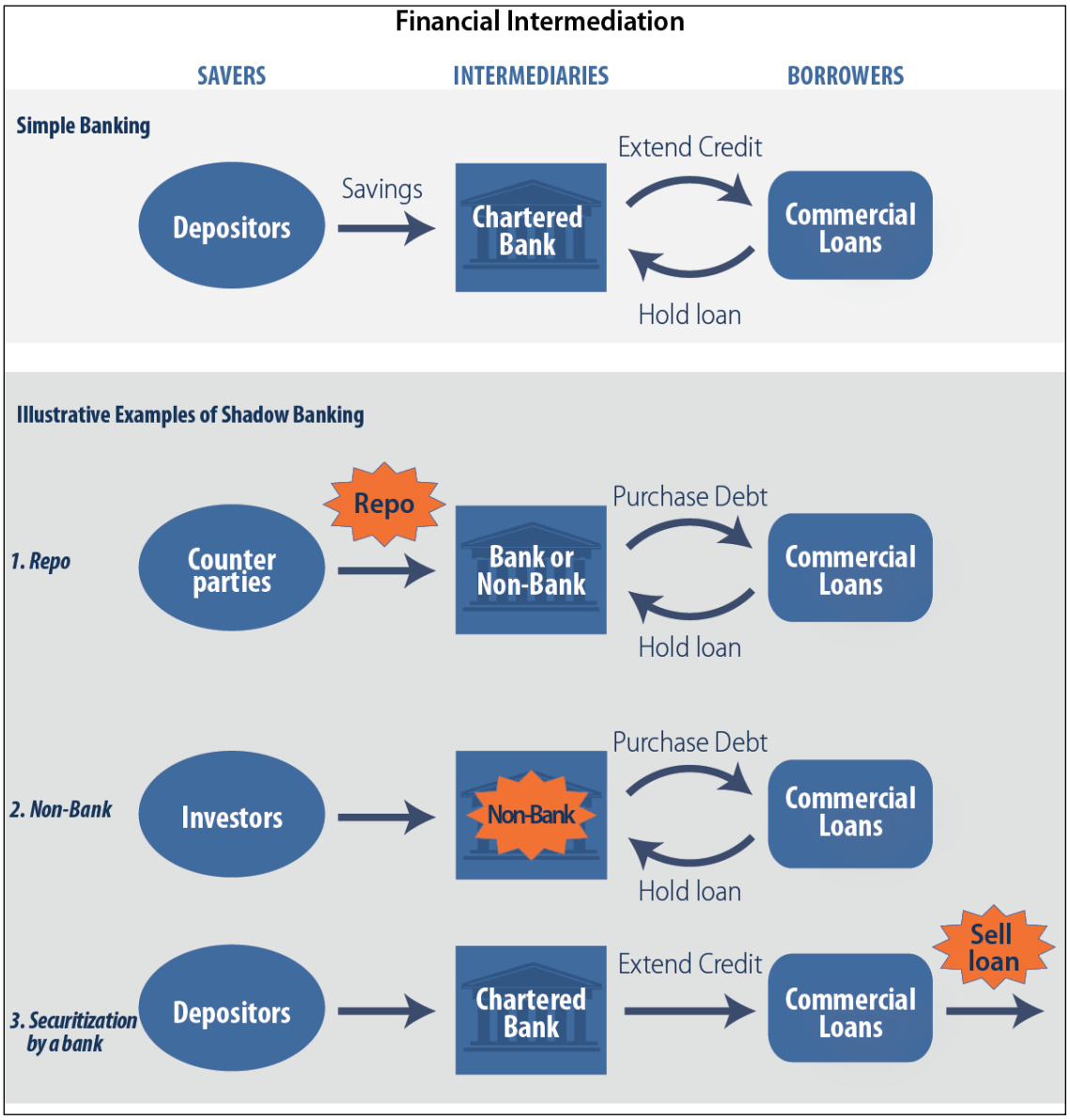
If shadow banking has at least one difference from simple banking, what is simple banking? Simple banking, or luminated banking, has each of the following four elements. The first row of **Figure 1** illustrates the flow of funds connecting savers and borrowers in a luminated banking business model. Luminated banks

1. gather funds in the form of deposits (time and transaction)
2. have special business charters identifying them as depositories
3. offer loans (and screen applicants)
4. hold the loans they originate. Repayments of loans fund the interest for depositors.

situations in which participants do not have an explicit public backstop. Yet, as shown in prior footnotes, the chair of the FDIC, the Financial Stability Board, Federal Reserve governors, and research staff of the IMF, have all expressed concern regarding the connection between banks and shadow banking practices, even if those practices are technically off balance sheet. See "Shadow Banking: A Review of the Literature," Tobias Adrian and Adam Ashcraft, FRBNY working paper no. 580, October 2012, available at http://www.newyorkfed.org/research/staff_reports/sr580.html.

Figure 1. Examples of Banking and Shadow Banking

Connecting Savers and Borrowers Through Financial Intermediation



Source: CRS

Notes: This is not an exhaustive list of monetary flows in financial intermediation. The flows show parallels between shadow banking and simple banking, and the stars show which part of financial intermediation a given shadow banking feature substitutes for a simple banking practice.

The term shadow banking has been used to describe a variety of firms and activities that have little in common. However, they each differ in an at least one respect from the simple conception of banking illustrated in the first row of **Figure 1**. In this illustration, the term luminated banking is being used to describe a simple form of the "originate-to-hold" model of depository banking. In **Figure 1**, each following row provides an illustrative example of an activity or firm that deviates from luminated banking in at least one respect, yet provides similar financial intermediation. Adjusting the focal point of intermediation from left to right, the first shadow banking example in **Figure 1** illustrates a substitute for deposits (in this case repos), the second shadow banking

example illustrates a substitute for firms with special bank charters (non-bank intermediaries), and the third row illustrates a substitute for holding loans (in this case selling loans through securitization).

The following five examples are a non-exhaustive list of shadow banking sectors. This list is included because each of these sectors will be addressed more fully in the policy analysis section of the report. They are presented here to see how each fits into the general concept of financial intermediation and how each differs from, or can be incorporated in, simple banking.

- (A) The Repo Market—Rather than gathering funds from depositors, some chartered banks (and nonbanks) borrow through repurchase agreements (repos, discussed more fully below). In a repo, a firm sells a security today with a promise to repurchase the security at a later date for a specified price. The time span and price differences are analogous to a loan and interest. Repos differ from simple banking in the way in which intermediaries gather funds from savers. Financial firms that fund themselves with repos may or may not have bank charters, may or may not extend credit or purchase debt, and may or may not hold the loans they originate. However, the first row of **Figure 1** shows that if a chartered bank borrows through repo markets (rather than deposits) in order to fund its lending activity, the financial intermediation is very similar to luminated banking. Furthermore, firms without bank charters can also gather funds from savers through repos.
- (B) Firms without bank charters—A firm does not have to be a chartered bank in order to borrow or lend, and luminated banking involves borrowing from depositors in order to offer and hold loans. In a trivial, but highly illustrative example, there was an ice cream shop in Pennsylvania that accepted deposits and offered loans.[10] Trusts and non-depository investment banks are more common than ice cream shops that offer banking services. The second row of **Figure 1** shows that if a firm without a bank charter funds itself with deposit-like loans while at the same time extending credit or purchasing debt, the resulting financial intermediation is very similar to luminated banking.
- (C) Commercial Paper—Firms do not have to go to banks to in order to borrow. Debt can be issued and traded through securities markets. Rather than originate and hold individual loans, chartered banks (and nonbanks) have at times sponsored interests in commercial paper, which is an example of marketable debt. One common form is to issue asset-backed commercial paper (ABCP), in which the commercial loans serve as collateral for shorter term debt issued in securities markets. Although not depicted in **Figure 1**, ABCP represents relatively short term borrowing (on the deposit side of financial intermediation) that is used to acquire and fund generally longer-term commercial debt. Commercial paper is not funded by deposits, and can be sponsored by a non-bank, and can involve acquiring commercial loans rather than originating commercial loans, yet the organization of the financial flows are similar to luminated banking. That is, savers extend short term loans to intermediaries, which hold commercial debt.
- (D) Securitization—Banks (and nonbanks) do not have to hold the loans that they originate. They can sell the loans to other banks (or nonbanks). If the loans are

[10] CRS Report R43087, *Who Regulates Whom and How? An Overview of U.S. Financial Regulatory Policy for Banking and Securities Markets*, by Edward V. Murphy.

then funded by issuing securities, typically passing through the loan repayments, it is said to be securitization. The third row in **Figure 1** illustrates securitization by a bank. Securitization by banks differs from luminated banking primarily in the way that intermediaries interact with borrowers, rather than savers (although the fact that intermediaries in securitization don't hold the loans can have important indirect effects on savers). Securitization can also facilitate lending by nonbanks.[11]

- (E) Money Market Mutual Funds—MMFs gather funds from investors in order to buy relatively low risk short-term debt in securities markets. MMFS are not depicted in **Figure 1**, and the description appears to differ from luminated banking in every respect. The MMF has investors, not depositors. The MMF does not have a bank charter. The MMF generally buys debt in securities markets, rather than hold debts that it originated itself. Yet, MMFs perform financial intermediation services that are very similar to luminated banks. On the lefthand side of financial intermediation, investor withdrawals from MMFs can be very similar to depositor withdrawals from banks. On the righthand side of financial intermediation, the effect of loan defaults on an MMF has some similarities to the effect of loan defaults on a bank that holds its own loans.

There are several "banking" charters in the United States, and the definition of luminated banking used above includes these firms as well. Credit unions and thrifts also accept insured deposits, have special charters which subject them to bank-like regulation, screen applicants, offer loans, and hold loans.[12] The term insured depository institution (IDI), which can include banks, credit unions, and thrifts, is sometimes used in the same manner that the term banking is used in discussions about shadow banking. IDIs can focus solely on simple banking, but they might also participate in some shadow banking activities, such as repurchase agreements or selling the loans they originate. When this report uses the term simple banking, IDIs are considered to satisfy the requirement for a banking charter.

Brief Description of Shadow Banking

If luminated banking is limited to the four elements of simple banking described above, then the United States has always had a shadow banking sector. In a large but perhaps analytically trivial example, the borrowing of the U.S. Treasury is almost entirely conducted through shadow banking. Or, at least, Treasury is not funded through *luminated banking*—chartered banks do not screen and qualify Treasury for loans funded by deposits, and with the intention of being held by the originating institution. Rather, loans to Treasury take the form of bonds originated through securities markets, with the intention of being marketable.[13] Some Treasury securities are ultimately held by chartered banks, but even those securities were not originated by that bank.

[11] CRS Report RS22722, *Securitization and Federal Regulation of Mortgages for Safety and Soundness*, by Edward V. Murphy.

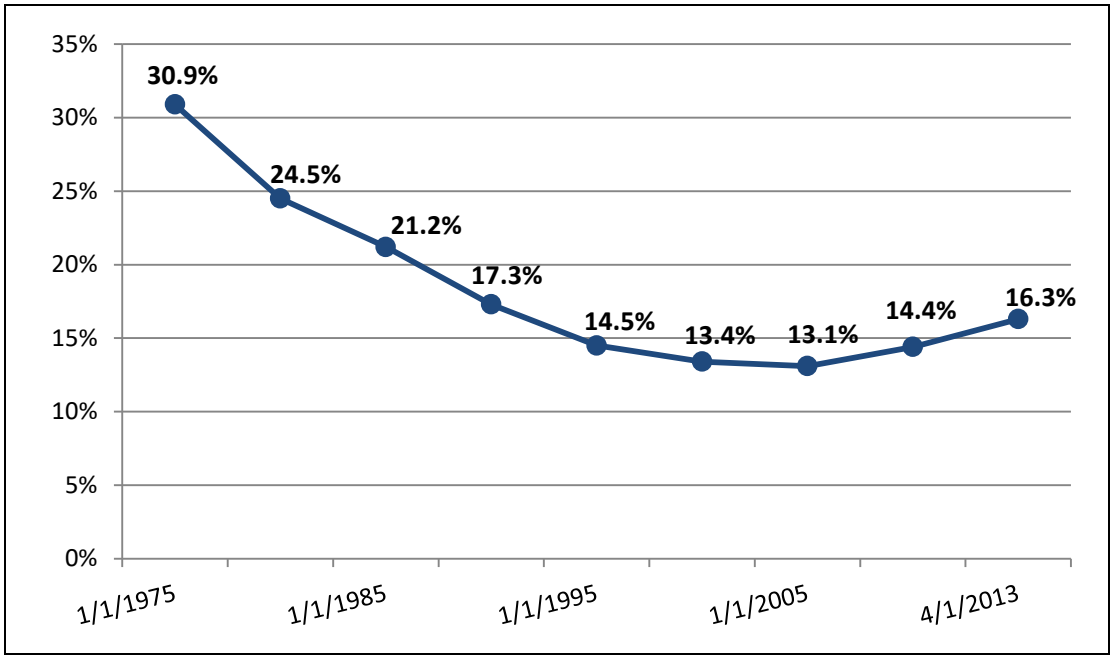
[12] CRS Report R43087, *Who Regulates Whom and How? An Overview of U.S. Financial Regulatory Policy for Banking and Securities Markets*, by Edward V. Murphy.

[13] On a smaller scale, the federal government is itself a nonbank lender through programs such as the Department of Education's direct student loan program. Furthermore, to the extent Treasury chooses to fund itself with bonds of a shorter maturity than the student loans, and U.S. assets are considered safe havens, the federal government meets the stricter criteria of some of the narrower definitions of shadow banking (maturity mismatch and assets perceived as safe money substitutes). The point is not that because the funding of the federal government meets some of the definitions of shadow banking that the federal government is a systemic concern; rather, that various forms of shadow banking are, and have been, common.

The exact size and growth of the shadow banking sector is sensitive to the definition of "simple banking." If shadow banking is being contrasted with deposit-funded banking, then shadow banking has historically been responsible for funding most of the debt outstanding in the United States. However, the share of total debt funded by deposits at commercial banks fell from slightly over 30% in 1975 to just over 13% in 2005, and then began rising after the financial crisis. **Figure 2** shows that deposits at commercial banks are now more than 16% of total debt in the United States. To the extent that shadow banking is being used to describe alternatives to debt funded by deposits, **Figure 2** is consistent with the view that the share of the luminated banking sector dropped by nearly half after 1975, but began rising after the mortgage crisis.

Figure 2. Deposits as a Share of Total Debt in the United States

1975-2013



Source: Federal Reserve Economic Database

Notes: Based on levels on January 1st of each year, on April 1st for 2013 (most recent consistent date).

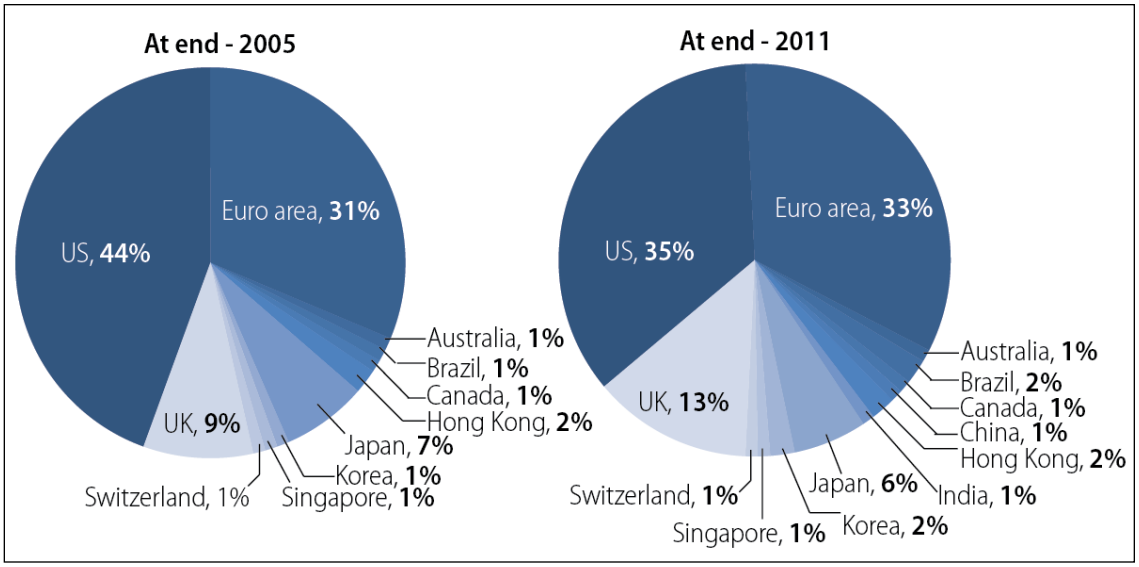
Shadow banking is a global phenomenon. Because the range of permissible activities of chartered banks varies considerably across countries, the relative size of shadow banking sectors also varies considerably across countries. Because many financial markets are global, potential instability of shadow banking sectors has drawn the attention of policymakers in many countries. Shadow banking in the United States is of particular importance to international institutions such as the International Monetary Fund (IMF), Financial Stability Board (FSB), and Bank for International Settlements (BIS), because the United States financial system holds the largest single share of global nonbank assets. According to a study done by the FSB, the U.S. accounted for 44% of total world nonbank financial assets at the end of 2005 (See **Figure 3**).[14] The relative decline in the U.S. shadow banking sector, partly due to the severity of financial crisis in the U.S. shadow banking system, can be seen in that the relative share of the U.S. shadow banking institutions had declined to 35% of world nonbank assets. Note, the definition of shadow banking in these pie

[14] "Global Shadow Banking Monitoring Report, 2012," FSB, Nov. 2012, p. 10, available at http://www.financialstabilityboard.org/publications/r_121118c.pdf.

charts is assets held by nonbanks, and thus excludes several shadow banking activities conducted in part by chartered banks.

Figure 3. Share of Global Nonbank Financial Assets

By Country



Source: Financial Stability Board

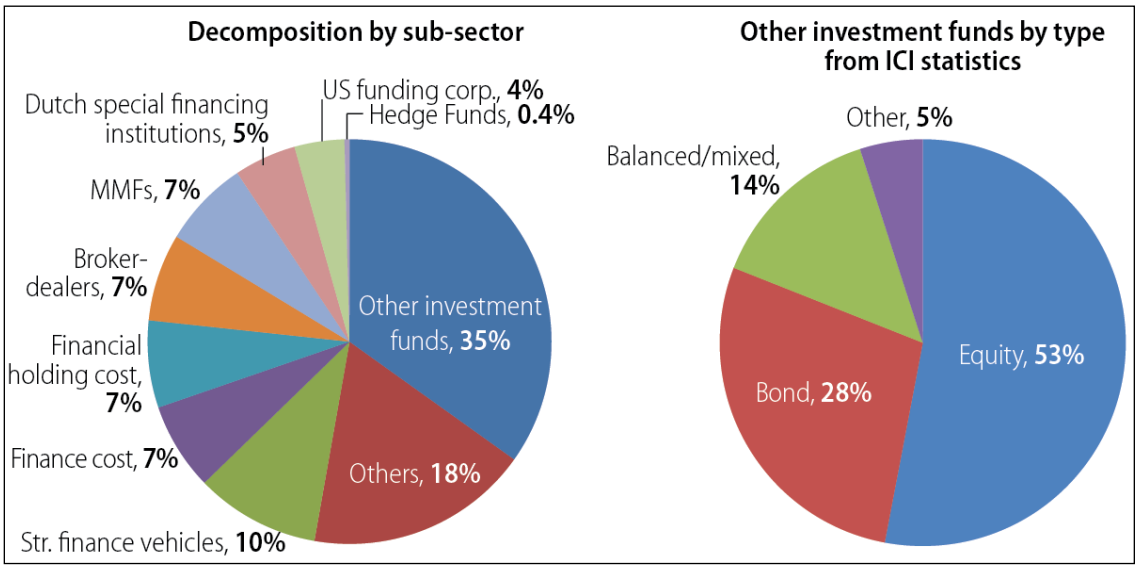
Notes: The definition and regulation of banks varies among countries so these charts can only be estimates. These pie charts are based upon an institution-based definition of shadow banking (excluding assets held by banks even if originated through shadow banking activities such as securitization or repo agreements).

The FSB study reinforces the observation that it is hard to generalize about the organizational structure of shadow banking, or its regulation. The FSB study also attempted to provide a measure of the composition of global nonbank assets by institution type, rather than by country. **Figure 4** shows that there is a wide variety of nonbank organizations that perform financial intermediation.[15] Structured finance vehicles (an element of many securitizations) accounted for 10% of the assets held by nonbanks, while money market funds accounted for 7%. Other investment funds, including bond and equity funds, held a combined 35% of global financial assets.

[15] Ibid.

Figure 4. Components of Global Shadow Banking System

By Type of Institution Holding Financial Assets



Source: Financial Stability Board

Notes: These pie charts are based upon an institution-based definition of shadow banking (excluding assets held by banks even if originated through shadow banking activities such as securitization or repo agreements).

The shadow banking sector may exist in the United States for historical or institutional reasons. Historically, the United States had impediments to the geographic reach of chartered banks, and the scope of services they could offer.[16] For example, during industrialization, it was not always easy for chartered banks to open branches in multiple states (limited deposit taking), and during some periods of time U.S. banks had restrictions on the interest they could pay depositors.[17] Perhaps in response to regulatory restrictions on banks, financial markets evolved in the United States to aggregate funds through securities markets to assist large industrial enterprises, such as railroads and factories.[18] Similarly, savings associations in the eastern United States could and did buy whole loans originated by western financial institutions; in addition to holding loans that they originated themselves. Furthermore, during the 19th century, classes of marketable securities called debentures were issued by trusts and sold to eastern investors (and others), with the proceeds used to buy and hold mortgages originated in the west.[19] In summary, the United States

[16] Restrictions on interstate banking were imposed at both the state and federal level, and several of these restrictions were reduced in the late 20th century. The extent and nature of the restrictions changed over time. For an introduction to the history written in the context of deregulation of interstate banking, see "Going Interstate: A New Dawn For U.S. Banking," Michelle Clark Neely, Regional Economist, July. 1994, Federal Reserve Bank of St. Louis, available at http://www.stlouisfed.org/publications/re/articles/?id=1885.

[17] A description of some of these restrictions and their removal over time is included in "The Real Effects of Banking Deregulation," Philip Strahan, Nov. 2002, available at http://research.stlouisfed.org/conferences/policyconf/papers/Strahan.pdf.

[18] An international comparison of financial system development is found in "Economic, Political, and Legal Factors in Financial System Development," Caroline Fohlin, Social Science Working Paper 1089, May 2002. Specific reference to the effects of bank regulations in United States can be found on page 7, available at http://www.hss.caltech.edu/SSPapers/wp1089.pdf.

[19] Snowden, Kenneth "Covered Farm Mortgage Bonds in the Nineteenth Century," NBER 16462, available at http://www.econ.ucla.edu/workshops/papers/History/Snowden%20w16242.pdf.

has a long tradition of funding debt (including mortgage debt) through securities markets; in addition to luminated banking.

Potential Policy Problems in Financial Intermediation

It is difficult to generalize about the policy problems of shadow banking because the same term is used to describe firms or activities that focus on different bank-like functions. This section reviews several fundamental economic vulnerabilities in financial intermediation, and provides examples of how similar problems can exist in sectors of shadow banking.[20] This is not an exhaustive list.

Credit Risk

Recall that luminated banks accept deposits in order to fund loans held by the bank. This basic business model has a number of vulnerabilities. One vulnerability is the risk that the borrowers that the luminated bank lent to will not repay their loans (credit risk), rendering it difficult or impossible for the luminated bank to honor its obligations to its depositors. If the value of a bank's assets (the loans it holds) drops below its liabilities (to depositors) the bank has a solvency problem.

Like a luminated bank, a shadow bank that holds loans is vulnerable to credit risk. During the 2007-2009 mortgage crisis, rising mortgage defaults reduced the value of mortgage-backed securities (MBS) and whole mortgage loans held by banks and shadow banks. These losses associated with MBS and other mortgage-related securities and derivatives brought the solvency of many financial institutions into question, reducing the willingness of financial institutions to lend to each other. Realized credit risk (mortgage defaults) reduced financial institution solvency, which in turn reduced liquidity.[21] Examples of firms with reduced solvency due to credit losses include the failure of the bank (thrift) IndyMac, and the conservatorship of Fannie Mae and Freddie Mac, two mortgage securitization firms who could be considered shadow banks.[22]

Interest Rate Risk

A second problem that a luminated bank might face is interest rate risk related to its maturity mismatch. Maturity mismatch refers to the difference in length of time (term) of repayment of money borrowed compared to money lent. One way a luminated bank makes money is that the interest rate it pays to its deposits (short-term loans) is usually less than the interest rate it receives on the loans it offers (typically longer term). However, if all interest rates rise, then the simple bank may have to pay higher interest to keep its deposits, but continue to receive the lower interest rate on the longer-term loans that it still holds from the earlier time period. Paying out higher interest rates than those received is not sustainable. Furthermore, the market value of

[20] More detailed comparisons of policy problems and responses in banking and securities markets can be found in Allen, Franklin and Richard Herring, "Banking Regulation versus Securities Market Regulation," Wharton working paper 01-29, July 2001, available at http://finance.wharton.upenn.edu/~allenf/download/Vita/0129.pdf.

[21] CRS Report RL34182, *Financial Crisis? The Liquidity Crunch of August 2007*, by Darryl E. Getter et al.

[22] Analysts that exclude institutions with a federal backstop (even if implicit) from the definition of shadow banking would not consider Fannie Mae and Freddie Mac shadow banks. However, if such a definition is used, then many sectors in which chartered banks participate should not be considered shadow banking.

existing fixed rate bonds (the assets the bank holds) falls when interest rates rise (causing a capital loss). An example of mortgage-related interest rate risk occurred in the late 1970s and early 1980s. A 1982 Brookings publication estimated the accumulated capital loss of the mortgage portfolios of thrifts in mid-year 1981 to be $111.2 billion.[23]

Like luminated banks, shadow banks that fund themselves with short-term obligations (albeit not deposits) in order to fund longer term assets have a maturity mismatch and are also vulnerable to interest rate risk. Interest rate risk during the 2007-2009 mortgage crisis is more difficult to assess, because policy rates targeted by the Federal Reserve and rates on safe assets (like U.S. Treasury bonds) were falling, but the spread between these rates and the rate paid by many private firms widened.[24] However, even if interest rate risk was not the primary contributor to the 2007-2009 mortgage crisis, shadow banks with a maturity mismatch are still vulnerable to similar problems that plagued the savings and loans during the 1970s and 1980s.

Liquidity and Runs

A third problem a luminated bank might have is the ability to maintain liquidity. Even if all loans are fully repaid (no credit risk) and interest rates remain stable (no interest rate risk), simple banks are still vulnerable to the possibility that too many of their depositors will wish to withdraw their funds at the same time (sometimes called a "run"). Even though the bank's assets in this example are objectively sound, it might not have time to convert the loans it holds to cash to cover withdrawals. That is, the depositor withdrawals create a need for cash (the most liquid asset), but the bank's own assets take more time to convert to cash (are less liquid). For example, objectively, there may be no reason to discount the value of an auto loan or mortgage held by the bank, but if it tries to sell it in a hurry, potential buyers may not have time to evaluate and verify the quality of the auto loan or mortgage. As a result, the bank might have to sell the auto loan or mortgage at a discount.

Like a simple bank, shadow banking activities can have liquidity problems. For example, during the 2007-2009 mortgage crisis, especially in the second half of 2007, uncertainty surrounding the condition of the mortgage market caused several asset classes in shadow banking to become less liquid (more difficult to sell without suffering a severe discount). Potential investors began to reduce their exposure to financial institutions (both banks and nonbanks) that were believed to hold assets that were becoming less liquid, making it more difficult for these firms to continue to fund the illiquid assets. Some analysts, such as Gary Gorton, have described the sharp reduction in non-deposit liabilities of financial institutions in September 2008 as a *nonbank run*.[25]

Asymmetric Information

In many financial transactions, the two parties do not have the same information, a characteristic known as information asymmetry. Several categories of financial vulnerabilities are potentially related to, or magnified by, information asymmetries. For example, before the creation of the FDIC, bank runs could occur if depositors heard damaging rumors about their bank, but could not

[23] Carron, Andrew, *The Plight of the Thrift Institutions*, Brookings, 1981, p. 18.

[24] "Reflections on a Year in Crisis," speech by Federal Reserve Chairman Ben Bernanke at the Federal Reserve Bank of Kansas City's Annual Economic Symposium, Jackson Hole, Wyoming, Aug, 2009, available at http://www.federalreserve.gov/newsevents/speech/bernanke20090821a.htm.

[25] Gorton, Gary "Slapped in the Face by the Invisible Hand," prepared for the FRB Atlanta conference on financial markets, May 2009, available at http://www.frbatlanta.org/news/conferen/09fmc/gorton.pdf.

confirm the true quality of their bank's assets.[26] The potential problem of information asymmetries is more general than bank runs; for example, asymmetries can affect the ability of banks to screen loan applicants.

Information asymmetries are of particular importance to those categories of shadow banking that rely on securities markets to perform bank-like functions. For example, if a financial intermediary has several classes of assets, but needs to quickly raise cash, does the intermediary have an incentive to sell its "lemons", that is, keep its "good assets" while it sells those assets whose value has declined, but whose quality cannot be easily verified? Even if intermediaries don't actually follow this strategy, potential buyers might fear that the strategy will be followed—and discount the value of all similar securities offered for sale. For example, during the mortgage-related financial crisis of 2007-2009, private issuance of mortgage-related securities approached zero at the height of the financial crisis, even though more than 90% of mortgage borrowers did not default on their mortgages.[27]

Collateral Fire Sales

A fourth problem faced by luminated banks is related to the collateral for some of their loans. Collateral refers to an asset a borrower surrenders to the lender if the borrower fails to repay a loan. Examples of collateralized bank lending include auto loans and residential mortgages, in which the car or property being purchased by the borrower serves as collateral for the loan. Some other types of lending, like credit cards, typically are not collateralized. When an asset being purchased also serves as collateral for the loan used to finance it, lenders are vulnerable to fluctuations in the price of the collateral. Although rising house prices insulate mortgage lenders from borrower defaults, declining house prices can cause self-reinforcing fire sales. That is, during periods of declining prices, borrower defaults will result in more houses being seized as collateral for the loans, and offered at foreclosure sales. These distress sales may reinforce the decline in house prices, and contribute to even more borrower defaults and additional distress sales.

Shadow banking that relies on collateral can also be subject to self-reinforcing fire sales. For example, during the mortgage crisis of 2007-2009, some forms of ABCP were collateralized by the mortgage-backed securities that they funded. Rising mortgage defaults increased losses among for the MBS. Accounting rules and capital requirements could affect the ability of certain financial institutions to continue to fund affected MBS or attempt to raise capital.[28] As a result, some firms might choose to sell their MBS at fire sale prices, rather than try to adjust their capital or adapt in other ways. The fire sales could reinforce price declines in MBS.

Systemic Concerns

The vulnerabilities of financial intermediation described above have been framed in the context of a single institution or market. However, one definition of systemic risk is the potential for the

[26] Calomiris, Charles W. and Gary Gorton. "The Origins of Banking Panics: Models, Facts, and Bank Regulation." In *Financial Markets and Financial Crises,* edited by R. Glenn Hubbard, 109-173. Chicago: University of Chicago Press, 1991.

[27] Data for historical issuance of residential mortgage backed securities (RMBS) can be found on the Securities Industry and Financial markets Association (SIFMA) website, http://www.sifma.org/research/statistics.aspx.

[28] Merrill, Craig B., Taylor D. Nadauld, René M. Stulz, and Shane M. Sherlund, "Why did financial institutions sell RMBS at fire sale prices during the financial crisis?" Wharton Working Paper 13-06, February 2012, available at http://fic.wharton.upenn.edu/fic/papers/13/13-06.pdf.

financial system itself to spread and magnify the losses of a single institution to the wider economy.[29] For example, financial intermediaries (both banks and nonbanks) can borrow from each other, not just from depositors, investors, or other counterparties. If financial intermediaries rely too heavily on their ability to borrow from each other should financial conditions worsen, then the resilience of the system as a whole may decline. That is, each institution in isolation might maintain too small level of a cushion against credit losses, or take too few precautions against interest rate risk, or reserve too small a proportion of liquid assets, or maintain too high a proportion of loans backed by a single class of collateral, compared to the precautions that would be appropriate if they took into account the tendency of the system as a whole to magnify losses. Thus, if financial intermediaries rely on their ability to borrow should they suffer unexpectedly high defaults (credit risk), they might not sufficiently take into account the rising cost of liquid assets and maintaining solvency during times when many financial firms need to acquire additional funding at the same time.

Systemic concerns in simple banking also apply to shadow banking. In the above example, if shadow banks suffer unexpectedly high defaults (credit risk), they may all try to increase their liquidity and raise new capital (to restore their solvency) at the same time. However, each firm's planning during the "good times" may have overestimated the availability and affordability of raising additional capital, and of acquiring and maintaining liquid assets, during "bad times", when many other financial intermediaries also need additional liquidity and capital. If so, then during bad times, interbank lending may decline significantly, or interest rates on interbank loans may rise substantially, exactly at the time that many financial intermediaries seek additional financing.

Regulation and Other Policy Responses to Financial Vulnerabilities

Because the term shadow banking is used to describe such a diversity of firms and practices, it would be incorrect to categorize luminated banking as regulated and shadow banking as unregulated.[30] However, in many cases (but not all), the kind of regulation applied to shadow banking activities is fundamentally different than banking regulation.[31] Banking regulation is typically risk based, and typically takes into account the linkages between banks through the payment system and the interbank lending market. Securities regulation, which several categories of shadow banking involves, generally requires disclosure of material risks, but typically does not limit the risk that sophisticated securities market participants may take. This section will briefly summarize four fundamental elements (not exhaustive) of banking regulation, because several reform proposals for shadow banking can be thought of as attempting to apply the principles of banking regulation to nonbank financial intermediaries or activities.[32]

[29] CRS Report R42083, *Financial Stability Oversight Council: A Framework to Mitigate Systemic Risk*, by Edward V. Murphy.

[30] Unless one defines shadow banking to exclude regulated firms. However, because securities markets are regulated, very few of the firms and activities that are called shadow banking would meet such a definition.

[31] CRS Report R43087, *Who Regulates Whom and How? An Overview of U.S. Financial Regulatory Policy for Banking and Securities Markets*, by Edward V. Murphy.

[32] This discussion is not necessarily an endorsement of banking regulation as superior to securities regulation. Savings and loans were subject to prudential regulation, had deposit insurance, and had access to a lender of last resort, yet savings and loans experienced a crisis.

Earlier sections of this report described economic vulnerabilities of the simple banking approach. Most of these vulnerabilities also apply to shadow banking; therefore, it may be useful to review general policy intended to stabilize luminated banking before discussing policy reform proposals intended to stabilize specific shadow banking sectors.

Safety and Soundness Regulation

Bank regulators have authority to promulgate and enforce regulations to limit the risks that chartered banks take. Recall that two of the fundamental problems of financial intermediation were credit risk (the risk that loan assets would default) and interest rate risk (the risk that differences in interest rates for assets and liabilities could threaten the institution). Within its statutory framework, safety and soundness regulation includes the ability to examine the bank's assets and liabilities prior to any particular sign of financial trouble.[33] Thus, bank examiners can attempt to look for potential problems in the firm's assets or liabilities (or assets compared to liabilities). They also have the potential ability to limit the total risk that any given institution has to any single counterparty, or to limit the aggregate exposure of the chartered banking system as a whole to any single asset class (such as real estate). In the extreme, a banking regulator can revoke a firm's charter.[34] One general policy proposal for shadow banking is to apply safety and soundness regulation to nonbank financial intermediaries, if they are not already subject to analogous regulation.

Capital Requirements

Capital requirements are a subset of safety and soundness regulation. In this context, capital refers to the equity stake, or similar investment, of the investors in the bank; in general, this equity stake can absorb losses before the financial interests of depositors and other creditors of the bank are threatened.[35] Recall that credit risk was one of the fundamental problems of financial intermediation. Capital requirements can establish a minimum level of resiliency in the banking system—the ability to absorb loan losses before the institution becomes insolvent. Furthermore, if capital requirements are risk-based, they can provide incentives to limit the risk of the assets held by covered institutions. Because capital is not free, an institution subject to risk-based capital requirements would tend to evaluate the relative return of two alternative loan types against the risk-based capital requirement for that loan type. Thus risk-based capital requirements can be used to direct covered institutions toward less risky asset classes. However, and also because capital is not free, higher capital requirements tend to limit the aggregate amount of assets that can be held by covered institutions. One general policy proposal in shadow banking is to apply capital requirements to nonbank intermediaries, if they are not already subject to analogous regulation.[36]

[33] FDIC, "Risk Management Manual of Examination Policies," available at http://www.fdic.gov/regulations/safety/manual/section3-2.html.

[34] But the existence of multiple charters that permit similar banking services may allow firms to avoid regulators with a reputation for revoking charters or onerous supervision. This is called regulatory arbitrage.

[35] CRS Report R42744, *U.S. Implementation of the Basel Capital Regulatory Framework*, by Darryl E. Getter.

[36] Fannie Mae and Freddie Mac are examples of firms that perform maturity transformation similar to banks, but without a bank charter. Both institutions are subject to safety and soundness regulation and minimum capital requirements.

Lender of Last Resort

A lender of last resort is an institution that has the ability to provide emergency loans during times of financial instability. Recall that liquidity was one of the fundamental problems of financial intermediation. That is, even if interest rates remained stable, and borrowers did not default, intermediaries are vulnerable to excessive withdrawals because the price of their assets might suffer steep discounts if they had to be sold in a hurry. In the United States, the Federal Reserve System is a lender of last resort to member institutions, and can expand its lending authority during financial turmoil, subject to a number of statutory restrictions.[37] One common policy approach for a lender of last resort, known as the Bagehot Rule, would encourage loans to solvent institutions, but at an above market rate (penalty rate). In some cases, for example, the Federal Reserve may only lend if it receives good collateral, which insolvent firms may run out of because their liabilities are greater than their assets. However, one critique of the 2008 financial crisis is that the lender of last resort should not just lend to solvent institutions, but also lend to insolvent institutions if those institutions are interconnected to the financial system in a way that could cause wider financial instability. One general policy proposal is to extend lender of last resort eligibility to shadow banking institutions, if they are not already eligible.

Deposit Insurance

One of the fundamental problems of financial intermediation is a depositor run, which may be more likely to occur during times of financial panic. If the sources of funding for financial intermediaries disappear, either through withdrawals or through refusals to renew expiring contracts, then intermediaries may not be able to continue to fund their assets, even if there are no loan defaults and no fluctuations in interest rates. Deposit insurance provides assurance to bank depositors that they will be protected (up to a limit) if their bank fails.[38] If deposit insurance is credible, then panic-driven depositor withdrawals may be avoided. Thus, credible deposit insurance may have prevented bank runs against savings and loans during the 1980s, even though the Federal Savings and Loan Insurance Corporation (FSLIC), which provided deposit insurance for S&L depositors, did not prevent hundreds of savings and loans from failing, or the system from requiring a bailout.

Specific Sectors of Shadow Banking

The report thus far has presented an economic framework to understand the disparate institutions and markets that are gathered under the term shadow banking. Some policymakers have proposed extending the principles of bank regulation to financial intermediation that is either conducted by nonbanks, or that might be conducted by banks but funded by nondeposits. Other options include regulating activities regardless of the type of firm engaging in it,[39] or attempting to correct mispricing that may occur when financial intermediation occurs through shadow banking.[40] This section will focus on several specific elements of shadow banking that have been highlighted by

[37] CRS Report RL34427, *Financial Turmoil: Federal Reserve Policy Responses*, by Marc Labonte.

[38] CRS Report R41718, *Federal Deposit Insurance for Banks and Credit Unions*, by Darryl E. Getter.

[39] Activity-based regulation could be applied to both banks and non-banks. Examples of this approach might include the Truth in Lending Act (TILA), which required disclosures for many consumer loans and applies to both banks and non-banks. The powers of the Consumer Financial Protection Bureau can apply to both banks and nonbanks.

[40] If participants in a shadow banking transaction are believed not to take into account the full social costs (including risk of financial instability), then this approach would be to attempt to impose a corrective fee on the transaction. This approach is analogous to Pigovian taxes on activities believed to cause negative externalities, such as pollution.

the Financial Crisis Inquiry Commission (FCIC), the Financial Stability Oversight Council (FSOC), the Financial Stability Board (FSB), the Federal Reserve Board (FRB), or the International Monetary Fund (IMF). In each case, the report briefly describes the institution or market, links it to the description of financial intermediation described above, briefly discusses its experience during the financial crisis, and describes related policy concerns. These categories are neither exhaustive nor mutually exclusive.

Repurchase Agreements

Description

In the context of shadow banking, a repurchase agreement is analogous to a banking deposit. In a repurchase agreement, one party sells another party an asset (perhaps a U.S. Treasury Bond) for one price, with an agreement to repurchase the asset on a future date at another (higher) price. The difference in the prices is functionally similar to interest on a loan. The asset being traded is similar to collateral for a loan because failure of the first party to repurchase would result in the other party keeping the asset, just as if the first party had defaulted on a loan and the second party seized the asset as collateral. Sometimes a third party is hired to assist repo transactions, often providing clearing and settlement services (tri-party repos). Intermediaries (both banks and nonbanks) can borrow funds through repos instead of through insured deposits. Like deposits, if repos are set for shorter time periods than the intermediary's assets, then the intermediary will be potentially exposed to interest rate risk, maturity mismatch, etc.

There are also differences between repos and deposits. Unlike deposits, repos are not eligible for deposit insurance. Because nonbanks can use repurchase agreements, there may be substantial financial intermediation processed by firms that are not eligible for assistance from the lender of last resort in the normal course of financial affairs. Unlike deposits, repurchase agreements use an asset as collateral. Doubts about the continued value of the asset generally used as collateral can reduce the volume of repurchase agreements available to fund intermediation (analogous to depositor withdrawals). Furthermore, if there are unexpectedly high repo defaults, the asset used as collateral may be dumped on the market, causing fire sales.

Experience During the Mortgage Crisis

The repo market experienced severe stress during the financial crisis. Economist Gary Gorton has documented the equivalent of a nonbank run on firms that had relied on the repo market for short-term financing.[41] Staff at the Federal Reserve Bank of New York (FRBNY) have been assessing the vulnerability of repos to the kinds of runs that Gorton described.[42] These authors identify both a liquidity constraint (which results in vulnerability to runs) and a collateral constraint (which results in vulnerabilities to fire sales). It is difficult to isolate the contribution of the repo market to the general crisis because many other markets experienced declines in liquidity at the same time.

[41] "Slapped in the Face by the Invisible Hand," Gary Gorton, prepared for the FRB Atlanta conference on financial markets, May 2009, available at http://www.frbatlanta.org/news/conferen/09fmc/gorton.pdf.

[42] "Repo Runs", Antoine Martin, David Skeie, and Ernst-Ludwig von Thadden, Federal Reserve Bank of New York Staff Reports, no. 444, April 2010; revised January 2012, available at http://www.newyorkfed.org/research/staff_reports/sr444.pdf.

Policy Concerns

Repo market policy concerns can be divided into three general categories. First, some have suggested that nonbanks that rely on repo transactions to conduct financial intermediation similar to banks should be subject to safety and soundness regulations. Title I of the Dodd-Frank Act (DFA) allows for this if the firm has more than $50 billion in assets and is designated as systemically important by the FSOC. For firms so designated, the DFA requires that the standards set for systemic nonbanks be no weaker than similar standards for banks. However, the DFA does not create a safety and soundness regime for nonbanks with less than $50 billion in assets.

Second, some have called for reforming the way repos are handled when a firm fails. For example, like other qualified financial contracts (QFCs), repo contracts are exempted from the bankruptcy estate of failing nonbanks. Under bankruptcy, payments subject to the automatic stay[43] are retrieved by the bankruptcy estate, reducing the incentive of a failing firm's creditors to race to its assets (a form of run). To the extent that the automatic stay in bankruptcy reduces the incentive of a firm's creditors to run to its assets, the exemption from the automatic stay may have contributed to the nonbank run in the repo market during 2008. Under Title II of the DFA, the FDIC would be able to avoid the bankruptcy process if there was a finding of systemic risk, and Title II gives the FDIC a limited ability to address potential problems of QFCs, including repo agreements. A firm does not have to have over $50 billion in assets or have prior designation of systemic risk for Title II to apply.

Third, some have called for reform of the techniques of repo trades. For example, the New York Federal Reserve, which participates in many repo transactions, has sought to improve certain technical features of the settlement system (the "plumbing" or "back office" function).[44] Similarly, some have expressed concern that delays in clearing and settlement expose the intermediaries in tri-party repos (the 3rd party) to undue credit risk. Finally, because repos are similar to collateralized loans, some are concerned that repo defaults or settlement fails could lead to fire sales.

Nonbank Intermediaries

Description

A nonbank intermediary is a firm without a bank charter that gathers funds from savers in order to fund loans to borrowers. Nonbank intermediaries come in many forms. For example, a mortgage company such as EMC Mortgage and an investment firm (nondepository) such as Bear Stearns could partner to generate mortgages that are then packaged and sold to investors (securitization through nonbanks). Similarly, a nonbank such as Fannie Mae can sell short term bonds that it uses to fund the acquisition of longer term mortgages that it keeps in portfolio.[45] Or, in a non-securitization setting, a nonbank like MF Global can fund itself through repo transactions to acquire and hold debt issued by sovereign governments. The exact form of nonbank intermediation can vary a great deal, and the regulatory status of the firms participating can also vary a great deal. In these examples, Fannie Mae was subject to safety and soundness regulation,

[43] The automatic stay refers to a feature of bankruptcy law in which payments by the bankrupt (including some recent payments already transmitted) are gathered in a pool awaiting coordination and distribution to creditors according to a predefined set of rules.

[44] "TriParty Repo Infrastructure Reform," White Paper Prepared by the Federal Reserve Bank of New York, May 17, 2010, available at http://www.newyorkfed.org/banking/nyfrb_triparty_whitepaper.pdf.

[45] In this example, Fannie Mae is issuing debt under its own name, not pass-through MBS, and holding the mortgages in its own portfolio.

capital requirements, and had access to some emergency liquidity, but MF Global was not. Yet, MF Global was subject to regulation for securities that it issued to potential investors, and the way it handled customer accounts.

Experience During the Mortgage Crisis

During the mortgage crisis, many nonbank intermediaries experienced a liquidity crunch, and some failed outright. In some cases, financial turmoil prevented evaluation of the true value of complex mortgage-related securities in a timely manner, perhaps exacerbating price declines, and contributing to further fire sales. Under the normal course of events, failing nonbanks would be resolved through the bankruptcy process, in which similarly situated creditors must be treated similarly. Perhaps believing that financial instability would be magnified if certain creditors suffered losses, some policymakers wanted to avoid the bankruptcy process.[46] Policymakers responded in at least two ways. The Federal Reserve set up special lending facilities (such as TALF) to support the liquidity concerns of nonbanks that could pledge eligible collateral. The Federal Reserve created special lending facilities to avoid the bankruptcy filing of Bear Stearns and AIG (but not of Lehman Brothers). Congress enacted the Housing and Economic Recovery Act (HERA). Under HERA, the newly created Federal Housing Finance Agency (FHFA) and Treasury administered a conservatorship of the GSEs in which the returns on some GSE senior securities were curtailed, but many other GSE obligations were fully honored.

Policy Concerns

Because there are many types of nonbanks, and nonbank business models, it is difficult to generalize about this category. However, it may be useful to distinguish between policy proposals directed at activities in which banks and nonbanks both participate, and policy proposals about the eligibility of nonbanks for government efforts to address financial instability.

The DFA attempts to address the participation of nonbanks in loan originations for consumers. Title X of the DFA creates a Consumer Financial Protection Bureau (CFPB) with authority to make rules for many consumer lending transactions that apply to both banks and nonbanks.[47]

The DFA changes policy options regarding nonbanks before and after a future crisis. Before a crisis, nonbanks with more than $50 billion in assets can be subjected to safety and soundness regulation if there is a determination of systemic risk concerns under Title I. Even smaller nonbanks can be resolved by the FDIC if there is a determination that their failure could contribute to financial instability under Title II. However, Title XI of the DFA limits the ability of the Federal Reserve to provide emergency lending to a single nonbank (as it did for Bear Stearns); rather, future emergency lending facilities would have to have more general eligibility criteria.

[46] Chairman Ben S. Bernanke "Lessons from the failure of Lehman Brothers," Before the Committee on Financial Services, U.S. House of Representatives, Washington, D.C., April 20, 2010.

[47] CRS Report R42572, *The Consumer Financial Protection Bureau (CFPB): A Legal Analysis*, by David H. Carpenter.

Asset Backed Commercial Paper

Description

Commercial paper is a very old type of security in which commercial loans are funded through securities markets, even if sponsored by a chartered bank. Asset Backed Commercial Paper (ABCP) commonly refers to senior short-term debt securities that are backed by commercial loans.[48] Both banks and nonbanks can sponsor vehicles to issue ABCP; for example, a bank could create ABCP to sell its credit card loan collectibles, while an auto financing company could create ABCP to sell its auto loan repayments. Typically, the sponsor of ABCP receives a fee for administering the assets of the ABCP facility and often promises to provide emergency loans (liquidity) to the ABCP facility if other sources of funding are distressed.

Experience During the Mortgage Crisis

Part of the mortgage boom during the housing bubble was financed with ABCP.[49] Beginning in August 2007, ABCP for subprime mortgage loans found it difficult or impossible to get external financing to support continued activity. As a result, many ABCP facilities turned to their sponsors for liquidity. As a result, many began absorbing subprime assets from sponsored ABCP that had not previously been disclosed on their balance sheets. Furthermore, the value of these mortgage-related assets had to be written-down. Late 2007 and early 2008 has been referred to as a liquidity crunch, in which uncertainty about further mortgage security related write-downs created financial uncertainty and mistrust in the interbank lending market. Some of these problems led to fire sales of the mortgages and mortgage-related assets that backed ABCP. Thus, credit losses on subprime mortgages contributed to liquidity problems for bank and nonbank intermediaries. The Federal Reserve created the Term Asset Backed Loan Facility (TALF) during the financial crisis to alleviate further fire sales of ABCP assets.

Policy Concerns

Several policy changes have been implemented to attempt to address future problems in ABCP. The accounting profession has attempted to address some of the uncertainty issues by revising the way contingent liabilities (such as ABCP liquidity sponsorship) are reported in accounting statements. For example, FAS 166 and 167 have amended FAS 140 to address concerns about the recording of a true sale of assets from a sponsor to its ABCP.[50] Similarly, the banking regulators have also addressed ABCP sponsorship by revising capital treatment for contingent liabilities, including promises to provide liquidity to sponsored ABCP.[51] Emergency lending facilities such as TALF have expired, but the Federal Reserve's emergency lending authority for similar general access programs is preserved under Title XI of the DFA.

[48] Not all commercial paper is asset-backed.

[49] Financial Crisis Inquiry Commission, Financial Crisis Inquiry Report, U.S. Government Printing Office, p. 113, available at http://bookstore.gpo.gov.

[50] Regulatory Capital Standards Final Rule Amending the Risk-Based Capital Rules to Reflect the Issuance of FAS 166 and FAS 167, FIL-3-2010, Jan. 2010, available at http://www.fdic.gov/news/news/financial/2010/fil10003.html.

[51] Ibid.

Securitization

Description

Securitization is similar to ABCP in that loans are funded through securities markets. Under securitization, a trust or similar facility is created that acquires assets with a stream of payments, such as loans. The trust issues new securities under its own name that pass through the asset payments to the holders of the securities. For example, a trust could be formed that holds mortgages, with the payments by mortgage borrowers being passed through to the holders of the securities. Although this example used mortgages, any stream of payments from credit cards to toll booth collections can be securitized.[52] One feature of securitization is that the terms of the securities issued by the trust (time of scheduled payments, relative seniority to other securities issued by the trust, etc.) do not have to match the timing or interest of the assets held by the trust as long as all payments are accounted for (complete pass through except for administrative expenses, and perhaps credit support). Chartered banks can participate in securitization by selling their loans, as can nonbank lenders. Typically, securitization conducted through private label firms did not include an issuer guarantee to cover credit risk. In contrast, securitization by the government sponsored enterprises does include a guarantee for credit risk, but not for interest rate risk.[53]

Experience During the Mortgage Crisis

Most observers, including all three opinions in the FCIC report, consider aspects of securitization to have contributed to the magnitude of the financial crisis, although there are different views on how or why. All three FCIC opinions agree with the following description of events.[54] Once credit losses escalated in the mortgage market, the demand for mortgage-backed securities disappeared. Many mortgage finance companies that originated and sold mortgages to private label securitizers failed. Some issuers of private label MBS suffered large losses because they retained some credit interest in the securities they sold (in some cases by retaining junior tranches to improve the credit rating of other tranches and in other cases by offering other contingent liabilities). Banks and other firms owned private label MBS, and had overestimated the relative safety of MBS. Firms that provided insurance to MBS securitization, or securities with similar functions, failed (this includes the monoline insurers and AIG). Fannie Mae and Freddie Mac, which had to cover the credit losses of the mortgages they securitized, were placed in government conservatorship, with contracts with Treasury to assure their financial condition. Legal challenges to the servicing of securitized mortgages by defaulting homeowners delayed resolution of foreclosed homes, potentially extending the time period of surplus distressed homes in geographic areas with the highest concentration of mortgage defaults.

Policy Concerns

Many changes have been made to private-label and GSE securitization since the beginning of financial turmoil in August 2007. In July 2008, HERA created a new regulator for Fannie Mae

[52] Kothari, Vinod, *Securitization: The Financial Instrument of the Future*, John Wiley and Sons, Hoboken, NJ, 2006.

[53] CRS Report R40800, *GSEs and the Government's Role in Housing Finance: Issues for the 113th Congress*, by N. Eric Weiss.

[54] Financial Crisis Inquiry Report, Financial Crisis Inquiry Commission, U.S. Government Printing Office, p 113, available at bookstore.gpo.gov.

and Freddie Mac. In September, 2008, these two GSEs were placed in conservatorship. However, the final disposition of the mortgage GSEs has not yet been determined.[55]

The volume of private label securitization is still extremely low compared to before the financial turmoil began. The Dodd-Frank Act created a new regulatory framework for the securitization process, especially for residential mortgage securitization. Under Title IX of the act, a new office was created within the SEC to regulate nationally recognized credit rating organizations (NRCRO), which are the firms that provide a label for the relative risk of marketable securities. Under Title VII, financial derivatives that were used to help construct complex securitized products must be standardized and cleared on an organized exchange regulated by the CFTC (or SEC), if possible. Under Title IX, firms that sponsor securitizations must retain a portion of the risk of the securities issued. Financial regulators issue rules for retained risk for each asset class, including for mortgages (QRM Rule). Under Title XIV, mortgages must meet certain standards to be assured certain legal protections in the case of default (QM rule), including securitized mortgages. Under Title X, most consumer financial products that are securitized, including credit cards, mortgages, and student loans, will be regulated for consumer protection by a single agency, the CFPB.

Some policies have yet to be fully specified and implemented. Some industry participants believe that the volume of securitization, especially for mortgages, will remain low until regulatory uncertainty is addressed. For example, mortgage securitizers would like to see the standards for the QM rule and the QRM rule be consistent, but differing legal contexts for the primary market (mortgage origination) and some secondary markets (securities regulation) may make such consistency problematic even if regulators use identical language in the two rules. Another potential concern is the creation and maintenance of a national mortgage database, which some analysts believe could address some of the uncertainty about the contents of MBS during the period of financial turmoil, and the legal challenges to the securitization process that escalated when the foreclosure volume increased.

Money Market Funds

Description

The SEC describes money market funds (MMFs) as "a type of mutual fund that is required by law to invest in low-risk securities."[56] MMFs raise their funds by selling shares, which are technically not deposits and are not insured. MMFs hold short-term debt in the form of government securities, certificates of deposit, commercial paper of highly rated companies, or other low-risk and highly liquid securities. MMFs can be structured to allow investors to redeem their shares (open ended MMF), or not (closed end). The difference between the value of an MMF's assets and its liabilities is called the Net Asset Value, or NAV. Since investors would like to receive more than a dollar for every dollar invested, MMFs attempt to keep their NAV greater than $1.00. If the NAV falls below $1.00, the MMF has "broken the buck," and its investors are essentially receiving negative interest on their shares.

Experience During the Mortgage Crisis

The MMF industry suffered a run after the failure of Lehman Brothers in September, 2008. Recall that in **Figure 1**, an open end MMF has structurally similar financial intermediation as a

[55] CRS Report RL34623, *Housing and Economic Recovery Act of 2008*, coordinated by N. Eric Weiss.

[56] http://www.sec.gov/spotlight/money-market.shtml.

depository bank. Lehman's bankruptcy filing meant that holders of its debt would likely receive less than full payment of the debt (credit risk). As a result, a prominent MMF (the Reserve Fund) that held Lehman's debt announced that it had "broken the buck." The Reserve Fund's announcement, combined with more general financial turmoil, led investors to withdraw their shares from MMFs, which open end funds could not avoid. People who had relied on MMFs to finance their activities, such as governments and issuers of commercial paper, lost their traditional source of funding.

Policymakers undertook emergency measures to try to stabilize the MMFs following the run on the industry. Treasury announced an insurance plan for MMFs, backed by the exchange stabilization fund (ESF)—a fund available to Treasury to stabilize the dollar under the old Bretton Woods exchange rate system. Subsequently, Congress enacted legislation to prohibit Treasury from using the ESF to stabilize MMFs in the future.[57] However, the extension of government assistance for one asset class during a crisis may create an expectation of assistance should a future crisis occur, perhaps encouraging excessive risk taking (moral hazard).[58]

Policy Concerns

MMFs continue to face the risk of runs. Structurally, the industry faces possible credit risk, maturity mismatch, liquidity problems, and other fundamental problems of financial intermediation. Prior to the financial crisis, the regulatory approach of the SEC had been to treat MMFs as securities issuers. Although eligible assets of MMFs are limited, and the portfolios of MMFs are subject to diversity requirements, MMFs are not subject to periodic examinations in the way that banks are. Rather, MMFs are required to provide periodic disclosures like other firms funded through securities markets. The experience of the crisis has led other financial regulators to encourage the SEC to adopt a prudential regulatory approach, more similar to banking, than the traditional securities regulation for MMFs. Through the minutes of the FSOC, other regulators have formally expressed their desire for additional regulations to address the potential for runs.

The SEC proposed several new rules for MMFs on June 5, 2013.[59] The formal comment period ended in September 2013, but final rules had not been issued as of time of this report's publication. The proposed rule contained two primary features designed to avoid runs in the MMF industry. The first would require a floating net asset value (NAV) for prime institutional money market funds. The second would allow the use of liquidity fees and redemption gates in times of stress. Redemption gates include provisions that limit the ability of investors to fully withdraw their funds in a crisis, such as temporary fees or aggregate withdrawal limits. The call for comment included discussion of allowing these as alternatives or to be used in combination. In addition to these primary features, proposed rule also included additional diversification and disclosure measures that would apply under either alternative.

[57] The Emergency Economic Stabilization Act (EESA) in 2008 included language prohibiting the use of the gold-exchange fund to provide assistance to money market mutual funds.

[58] The regulations for MMFs already limit their assets to classes believed to be safe, which limits some forms of moral hazard.

[59] SEC, Release No. 33-9408, IA-3616; IC-30551; File No. S7-03-13, RIN 3235-AK61, Money Market Fund Reform, available at http://www.sec.gov/rules/proposed/2013/33-9408.pdf.

Conclusion

Although researchers use the term shadow banking inconsistently, with important implications for their policy analysis, the concept always excludes luminated banking. The term luminated

banking describes debt funded by the insured deposits of firms with special banking charters. Nonbanks often facilitate shadow banking by funding debt through securities markets. Similarly, banks can be involved in shadow banking if they find short-term substitutes for insured deposits. Whether offered by nonbanks or by banks, the creation and funding of debt is often subject to several economic vulnerabilities linked to financial intermediation, such as vulnerabilities to runs or fire-sales.

Securities markets and firms with banking charters are both regulated; thus, much of what is described as shadow banking is subject to some federal regulation. However, the type of regulation that applies to shadow banking varies. Banking regulation is typically prudential (risk-based), but securities regulation typically is not. Securities regulation is typically not limited to firms with a special charter, but banking regulation typically is. Bank holding companies that participate in shadow banking are subject to prudential regulation, at least on a consolidated level.

The FSOC and the FSB have identified several components of shadow banking that may be of heightened concern. The diversity of these practices and firms makes broad generalizations about policies to address shadow banking difficult. In many cases, policy proposals attempt to apply bank-like regulation to nonbanks. The Dodd-Frank Act extends several prudential regulatory principles associated with banking regulation to nonbanks if they are designated as systemically important. Some believe that extension of bank-like regulation is inappropriate for some firms with different balance sheets (such as insurance companies). Others believe that the Dodd-Frank Act did not extend bank-like regulation enough because some intermediaries are too small to be systemically important, but the industry as a whole may be financially vulnerable (such as MMFs).

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